Chapter 5

Toxic Pollutants

TOXIC POLLUTANTS

GENERATION OF TOXIC CHEMICALS

Indicator 1. Generation of Toxic Chemicals

Background Toxic pollutants are those pollutants that can cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse ecological and environmental effects.[1] Toxic wastes are often produced as by-products of the manufacturing process. The U.S. Environmental Protection Agency (EPA) developed the Toxic Release Inventory (TRI) in 1986 to estimate and track the generation and the release of more than 650 toxic chemicals. The TRI requires certain manufacturers to self-report to the public the amount of chemicals generated, released or transferred for treatment. But TRI has its limitations. The U.S. Office of Technology Assessment estimates that the TRI accounts for only 5 percent of the total releases of toxic chemicals to the environment.[2] In addition, chemicals and industries are continually added to or deleted from the TRI reportable list, making yearly comparisons difficult. Still, TRI is the best data available to monitor toxic generation and releases. In 1999, the most recent year that TRI data were available, 22,639 facilities in the United States reported generating 29 billion pounds of toxic chemicals and related waste.[3]

Goal Reduce the weight of toxic chemicals generated by 25 percent at each Kentucky facility by January 1, 1997, and by 50 percent by January 1, 2002, using 1987 as a base year (per KRS 224.46-305).

Progress Kentucky industries continue to generate a significant amount of toxic chemicals. In 1999, 456 facilities generated 714.8 million pounds of TRI chemicals in Kentucky.[4] The amount of toxics generated continues to increase as more industries and chemicals are added to the reportable list. For example, in 1998, the U.S. EPA required seven additional industrial sectors to report. These sectors included metal and coal mining, electrical utilities, hazardous waste facilities, chemical wholesalers, petroleum terminals and solvent recovery services. In Kentucky, these seven industries added an estimated 123.3 million pounds of production-related toxic chemicals to the 591.5 million pounds reported by the original facilities during 1999.

Electric utilities, a newly reporting industrial sector in 1998, became the second-largest single source of toxics, generating 96.2 million pounds of toxics (13 percent of the total) during 1999. However, the chemical industry produced by far the most toxic waste (355.6 million pounds or 50 percent of the total generated). No analysis has been made by the state to determine its progress toward meeting the 25 percent and 50 percent toxic reduction goals.

At a Glance

Companies generating toxic chemicals (1999)
U.S. 22,639
Kentucky 456

Generation of toxic chemicals in Kentucky
1991. . .525.8 million lbs.
1998. . .646.1 million lbs.
1999. . 714.8 million lbs.

Generation of toxic chemicals by source
chemical industry. . 50%
electric utilities. . . 13%
primary metals 12%
paper 6%
printing 4%
other 15%

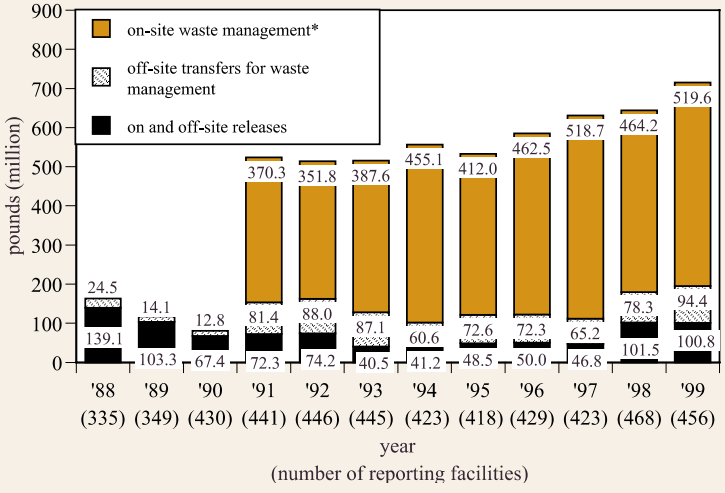
Footnotes

1. National Air Toxics Program: The Integrated Urban Strategy Report to Congress, U.S. EPA, July 2000.
2. 1994 Toxic Release Inventory Report, page 214, U.S. EPA, 1996.
3. Toxic Release Inventory 1999 Executive Summary, page E-6, U.S. EPA, 2001.
4. 1998 Toxics Release Inventory State Fact Sheets, U.S. EPA, 2000.

Measures - notes and sources

***Measure 1**. Previous years not adjusted for newly added or deleted chemicals. In 1999 TRI release and transfer totals adjusted due to the misreporting of 5,423,876 lbs. of lead compounds as being released when it was transferred offsite for recycling. *Onsite waste management reported after 1991. Source: Toxics Release Inventory Explorer.*

Measure 1. Generation of Toxic Chemicals in Kentucky



Toxic Chemical Releases

At a Glance

Toxic releases to the environment
1990. . . 67.4 million lbs.
1997. . . 46.8 million lbs.
1999. . .100.8 million lbs.

Toxic releases by media (million pounds) (1999)
air. 75.315
land 15.515
disposal off site . .6.913
water. 3.014
RCRA landfill 0.021

Indicator 2. Toxic Chemical Releases

Background Most of the toxic chemicals generated by Kentucky industries are managed at the site produced through recycling, energy recovery or treatment. However, some of these pollutants are released to the environment. During 1999, 14 percent (100.78 million pounds) of the 714.8 million pounds of toxic chemicals generated were released to the land, air or water.[1] Kentucky is ranked 20th in the nation in toxic releases.[2] A majority of the toxic releases (65 percent) occurred in 10 counties.[3]

Goal Reduce the weight of toxic chemicals generated by 25 percent at each Kentucky facility by January 1, 1997, and by 50 percent by January 1, 2002, using 1987 as a base year.

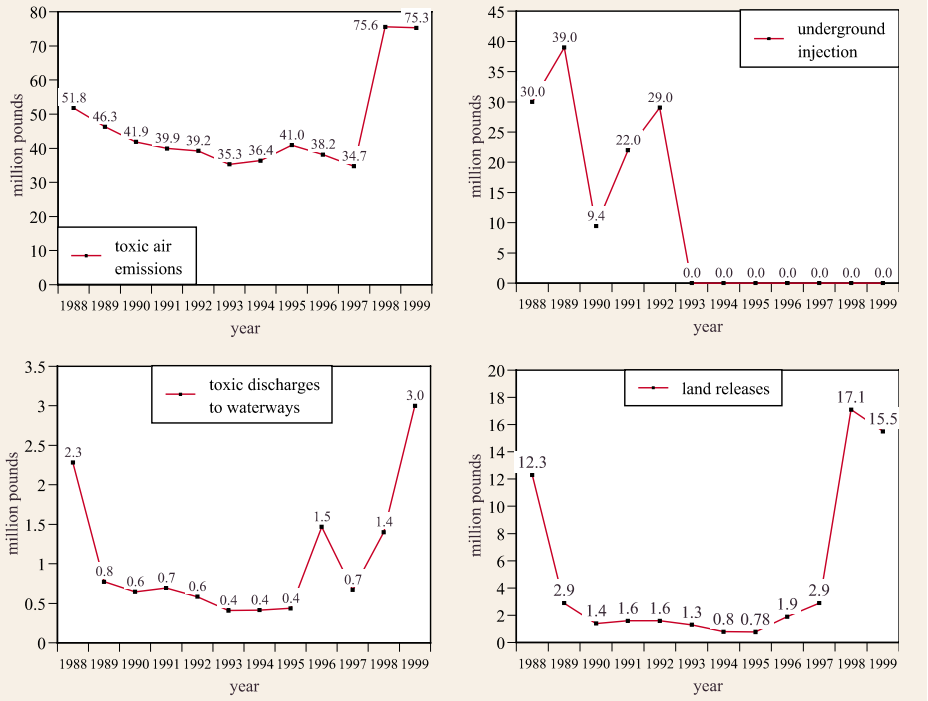
Progress In 1999, 366 Kentucky industries reported releasing 100.8 million pounds of toxic chemicals to the environment. Ten of these companies accounted for 51 percent, or 51.3 million pounds, of the toxic chemicals releases.

Between 1995 and 1999, the pounds of toxic chemical releases increased 108 percent. This was due to the addition of 286 chemicals in 1994 and the addition of 7 industrial sectors to the reporting list in 1998. A review of the original industries (excluding the 7 new reporting sectors) reveals a yearly decline (from 12 percent to 1 percent) in toxic releases since 1996. Toxic chemical releases from the original industries releases fell from 49.9 million pounds in 1996 to 40.39 million pounds in 1999—a 19 percent decline. The seven new reporting industries released 60.39 million pounds of toxics to the environment in 1999.

A majority of the toxics released to the environment during 1999, 75 percent (75.3 million pounds), were released to the air. Between 1997 and 1999, air releases increased by 117 percent, land releases increased 434 percent, while toxic chemical releases to waterways increased fourfold. These increases were due to the addition of seven new reporting industries.

Hydrochloric acid and sulfuric acid were the top toxic chemicals released to the environment in Kentucky during 1999. Some 44.2 million pounds of these chemicals were released to the air in 1999 (44 percent of the total toxic releases). The electric power industry was responsible for 97 percent of the hydrochloric and sulfuric acid releases in the state. Power plants were also responsible for about half of the metals (lead, chromium, mercury, nickel, aluminium, antimony, barium, beryllium, cobalt, copper, manganese, zinc and their compounds) reported released in the state in 1999.

Measure 1. Releases of Toxic Chemicals to the Environment in Kentucky



Footnotes

1. 1999 Toxics Release Inventory State Fact Sheets, U.S. EPA.

2. Toxic Release Inventory 1999 Executive Summary, page E-4, U.S. EPA, 2001.

3. TRI Explorer, Web site - http://www.epa.gov/triexplorer/geography.htm.

TOXIC POLLUTANTS

TOXIC CHEMICAL RELEASES

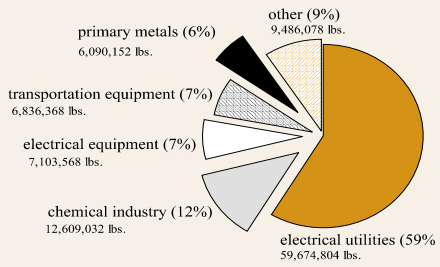
Measure 2. Top Ten Toxic Chemicals On-Site Releases to Land, Water, Air (1999)

***Land Releases (lbs.)**
Barium Compounds (5,256,883)
Zinc Compounds (2,422,355)
Manganese Compounds (1,490,880)
Nitrate Compounds (1,069,179)
Nickel Compounds (934,216)
Copper Compounds (767,854)
Chromium Compounds (739,379)
Lead Compounds (685,633)
Aluminum (540,000)
Arsenic Compounds (451,525)

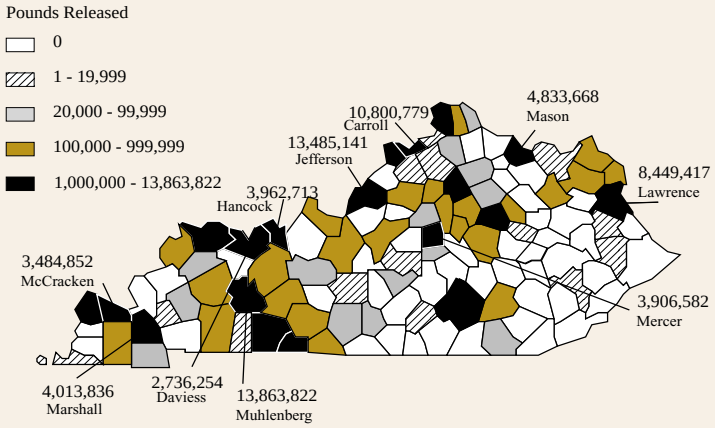
Water Releases (lbs.)
Nitrate Compounds (2,335,564)
Manganese Compounds (202,922)
Barium Compounds (161,260)
Zinc Compounds (59,825)
Ammonia (44,249)
Arsenic Compounds (30,546)
Nickel Compounds (26,044)
Methanol (19,397)
Copper compounds (18,271)
Antimony Compounds (17,461)

Air Releases (lbs.)
Hydrochloric Acid (26,899,704)
Sulfuric Acid (17,170,432)
Methanol (4,096,597)
Toluene (3,384,126)
Xylene (2,647,511)
Chlorodifluoromethane (2,384,043)
Hydrogen Fluoride (2,149,608)
N-Hexane (2,099,393)
Dichloromethane (1,876,40)
Ammonia (1,651,485)

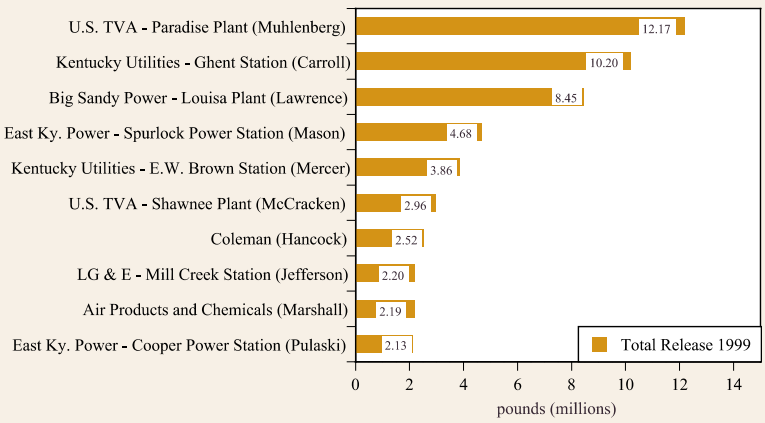
Measure 3. Toxic Chemical Releases in Kentucky by Source (1999)



Measure 4. Toxic Chemical Releases to Air, Land, Water and Top Ten Counties with Releases (1999)



Measure 5. Top 10 Kentucky Facilities (County) Releasing Toxic Chemicals to the Environment (1999)



Measures - notes and sources

***Measure 1**. Previous years are not adjusted for newly added or deleted chemicals. Disposal to land does not include releases to RCRA landfills. Past years numbers have been revised. Source: Toxics Release Inventory Report.*

***Measure 2**. *Includes only onsite releases. Source: Toxics Land Release Inventory Report.*

***Measure 3**. Releases reported at site of generation. Source: Toxics Release Inventory Report.*

***Measure 4**. Onsite releases. Source: Toxics Release Inventory Report.*

***Measure 5.** 1999 numbers include both land releases and transfers offsite for land disposal. Source: Toxics Release Inventory Reports.*

Toxic Chemical Transfers

Indicator 3. Toxic Chemical Transfers

At a Glance

Toxic chemicals transferred offsite
1991. . . 83.2 million lbs.
1997. . . 67.6 million lbs.
1999. . . 94.4 million lbs.

Principal methods of disposal (million pounds)
recycling 55.515
energy recovery 22.434
treatment. 16.455

Background About 73 percent (519.6 million tons) of the 714.7 million pounds of toxic chemicals generated in Kentucky during 1999 were treated at the site of production, while 14 percent (100.8 million pounds) were released to the environment. The remaining 13 percent (94.4 million pounds) were transferred offsite for treatment or disposal. Chemicals can be transferred offsite for recycling; energy recovery; treatment (includes neutralization, incineration, biological and physical separation); to a publicly owned wastewater treatment plant for treatment; or to a landfill for disposal.

Goal To promote a hierarchy of waste management priorities with source reduction the preferred option as specified in the federal Pollution Prevention Act of 1990. If a waste cannot be eliminated outright, then the second-best waste management option is to recycle, followed by treatment and lastly disposal.

Progress Nationwide, during 1999, 3.6 billion pounds of toxics were transferred offsite for disposal. In Kentucky, 263 facilities reported transferring 94.4 million pounds of toxic pollutants off site. Kentucky ranked eighth in the nation in the amount of toxic chemicals transferred offsite.[1] In addition, Kentucky received 13.9 million pounds of toxic waste from other states for treatment.[2]

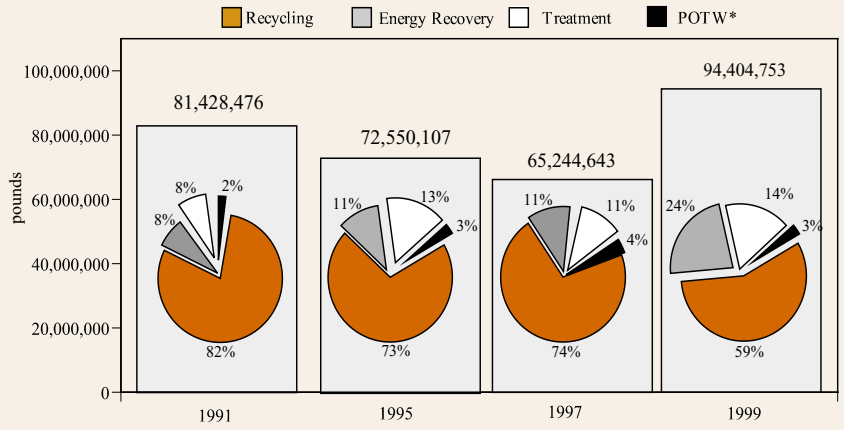
More than half (59 percent or 55 million pounds), of the toxic chemicals transferred offsite by Kentucky facilities were recycled in 1999. Another 24 percent (22.4 million pounds) were recovered for energy, and 17 percent (16.4 million pounds) were treated to render them nontoxic.

The notion of reducing or preventing the generation of toxic pollutants has been promoted in the state by the Kentucky Pollution Prevention Center. The center is based at the University of Louisville. The center provides free assistance to companies to help reduce and prevent waste. To date, the center has trained 6,200 people during 68 seminars and performed 29 site assessments to assist companies reduce and prevent waste.

Footnotes

1. TRI Explorer, Web site - http://www.epa.gov/triexplorer/geography.htm.
2. Toxic Release Inventory 1999 Public Data Report, page 3-20, U.S. EPA, 2001.

Measure 1. Kentucky Generated TRI Chemicals Transferred Off-Site



Measures - notes and sources

Measure 1*. Transfers offsite for recycling, energy recovery, treatment and disposal were not tracked until 1991. U.S. EPA moved transfers offsite for disposal into the release category. 1996 was the first year that land disposal offsite was tracked as a release. **POTW - Publicly-Owned Treatment Works. Source: Toxics Release Inventory Reports.*

TOXIC POLLUTANTS

PRIORITY TOXIC CHEMICALS

Indicator 4. Priority Toxic Chemicals

Background In 1991, the U.S. Environmental Protection Agency (EPA) launched a national program to encourage industries that release and transfer significant amounts of highly toxic chemicals to voluntarily reduce their emissions. A primary focus of the program was also to demonstrate that industries could voluntarily make reductions without the use of traditional regulatory requirements.

The national "33/50 Program" is designed to track the release and transfer of 17 TRI priority chemicals from participating industries using 1988 as the baseline. These chemicals were targeted by the U.S. EPA for reduction because they are highly toxic, used in large volumes, or pose a significant risk to public health and the environment. Nationwide, 6,830 facilities participated in the U.S. EPA's 33/50 Program.[1] Approximately 132 facilities in Kentucky participated in the program.

Goal Reduce the generation of 17 TRI priority chemicals 33 percent by 1992 and 50 percent by 1995, using 1988 as the base year.[2]

Progress The U.S. EPA reports that companies participating in the 33/50 program have met the program reduction goals. Total U.S. generation of 17 TRI priority chemicals was reduced by 67.6 percent between 1988 and 1996. Kentucky facilities participating in the 33/50 program reduced the releases of the 17 priority toxics by 53 percent between 1988 and 1995.[3]

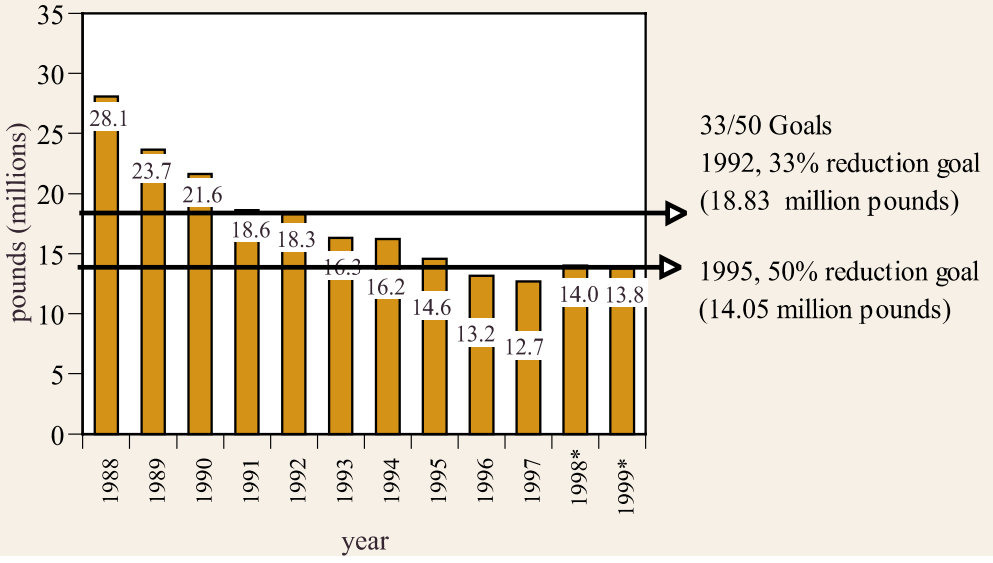
A review of statewide releases of the 17 priority TRI chemicals found that Kentucky met the 50 percent reduction goal in 1996.[4] Data for 1999 reveals that Kentucky continues to meet the 50 percent reduction goal for the 17 TRI chemicals. The national 33/50 program ended in 1996.[5] A new integrated air toxic strategy is now under development by the U.S. EPA.[6] The strategy targets 33 toxic pollutants for reduction that pose the greatest potential health threat in urban areas.

At a Glance

Number of Kentucky facilities participating in the 33/50 toxics reduction program. . 132

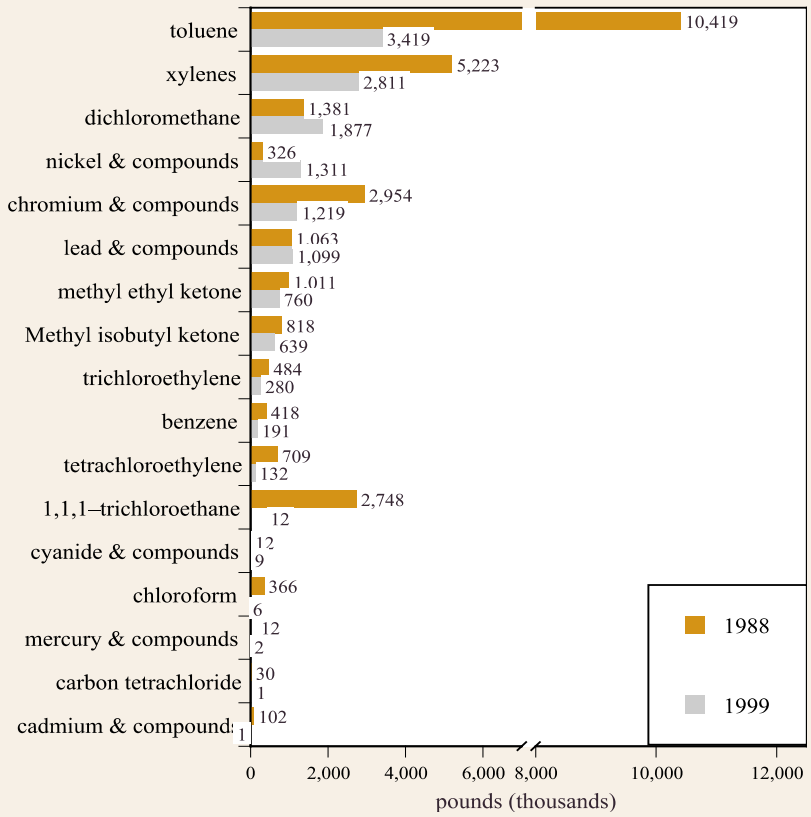
Release of 17 priority chemicals (million lbs.)
1992 . . . . . 18.3
1995 . . . . . 14.6
1998 . . . . . 14.0
1999 . . . . . 13.8

Measure 1. Releases of 17 Priority Toxic Chemicals in Kentucky



PRIORITY TOXICS

Measure 2. Release and Transfer of 17 Priority Toxic Chemicals in Kentucky



Footnotes

1. *33/50 Program, The Final Record, page 7, U.S. EPA, March 1999.*
2. *Ibid, page 1.*
3. *33/50 Program, The Final Record, page 23, U.S. EPA March 1999.*
4. *Ibid.*
5. *Ibid, page 2.*
6. *National Air Toxic Program: The Integrated Urban Strategy Report to Congress, U.S. EPA, July 2000.*

Measures - notes and sources

Measure 1. *Based on releases on and offsite. Does not include transfers for recycling and energy recovery, which were not reported until 1990. Yearly totals are based on the reduction of priority chemicals by all Ky. facilities and not just those participating in the national 33/50 program. Data for previous years includes revised numbers. *Includes 7 new reporting industries. Source: Toxics Release Inventory Reports.*
Measure 2. *This chart includes releases on and offsite. Source: Toxics Release Inventory Reports.*

TOXIC POLLUTANTS

SPILLS & EMERGENCY RESPONSE

Indicator 5. Spills and Emergency Response

Background Each year, millions of gallons of toxic and hazardous substances are accidentally spilled along transportation routes and at industrial sites across the nation. Industries and others handling these materials are required to report spills and accidental releases immediately to state and local officials.

Goal Prevent and respond to and contain spills to minimize environmental degradation and public health threats.

Progress Incident notifications received by the Kentucky Department for Environmental Protection's Environmental Response Team have increased from an average of one report a day in 1983 to 8.4 a day in 2000. The 17-year rise in reported spills is attributed to an increase in transportation activity due to a growing economy, the tightening of reporting requirements earlier in the decade and better education and awareness of reporting requirements. In 2000, there were 3,069 release incidents reported. The drop in reported spills from 1998 to 2000 is due to the phaseout of many older underground petroleum storage tanks. These old tanks were required to be removed or upgraded by Dec. 22, 1999. The Emergency Response Branch estimates that up to 30 percent of the spills that had been reported each year for the past few years were the result of leaking underground storage tanks.[1]

Kentucky experienced a number of major spills in 2000. They included the Ashland Petroleum pipeline break in Clark County which resulted in a spill of 500,000 gallons of crude oil onto a farm and nearby golf course. A fire at the Wild Turkey Distillery released thousands of gallons of bourbon into the Kentucky River, killing an estimated 227,000 fish. This was the largest fish kill in Kentucky history. Kentucky also fell victim to the worst coal slurry spill in the history of the Southeast. On Oct. 11, 2000, 250 million gallons of coal slurry spilled out of a failed impoundment in Martin County. The slurry water mixture clogged 60 miles of waterways. A cleanup of the spill is underway by Martin County Coal, which it estimates may cost $46 million.

At a Glance

Reported spills in Kentucky

1990	2,209
1998	4,534
2000	3,651

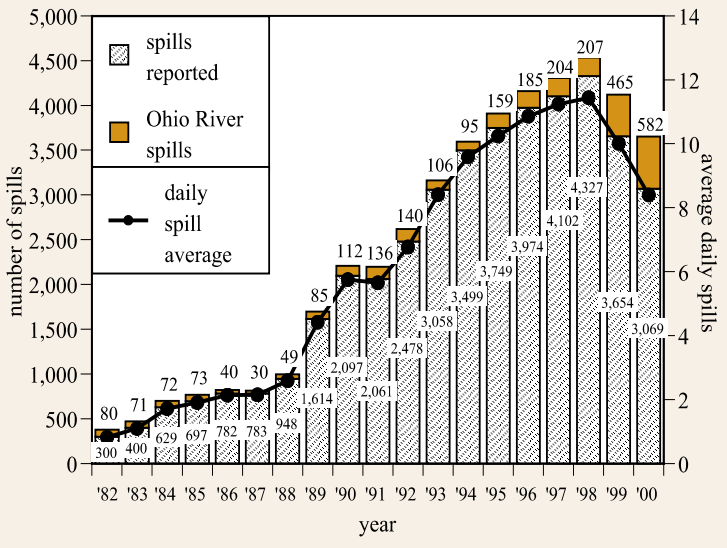
Footnotes

1. Ky. Division of Water, Field Operations Branch, October 2000.

Measures - notes and sources

Measure 1*. 1982-83 data are estimates. 1986 Federal Emergency Planning and Community Right-to Know Act required more extensive spill reporting. Source: Ky. Department for Environmental Protection.*

Measure 1. Toxic and Hazardous Spills in Kentucky



Agricultural & Lawn Care Chemicals

Indicator 6. Agricultural and Lawn Care Chemicals

At a Glance

Agricultural pesticides used in Kentucky
1990 . . . 9.03 million lbs.
1995 . . . 8.49 million lbs.
1999 . . . 9.20 million lbs.

Leading agricultural pesticides used in Kentucky (pounds)
Atrazine 930,908
Gyphosate. . . . 1,319,833
Metolachlor. . . . 900,452
Maleic Hydradize 689,460
Acetochlor 567,794

Collection of old agricultural pesticides
1995 . . . . . 8,700 lbs.
1998 . . . . . .37,460 lbs.
1999. . . . . 50,836 lbs.

Lawn care pesticides used in Kentucky
1992 . . . . . 598,000 lbs.
1997 . . . . . 553,000 lbs.
1999 . . . . . unknown

Background There is increasing concern regarding the health and environmental effects associated with the use of more than 20,000 different pesticide products registered for use in the United States. Agriculture accounts for 75 percent of the total amount of pesticides used in this country.[1] The use of agricultural pesticides and fertilizers has increased crop yields significantly. However, these chemicals can also run off the land, pollute nearby waterways and seep into groundwater.

Nationwide, an estimated 707 million pounds of pesticides were used for agricultural purposes during 1997.[2] In Kentucky, agricultural chemicals are widely used on the 5.2 million acres of land in active crop production. Kentucky farmers used an estimated 9.20 million pounds of pesticides in 1999. The total pounds of pesticides sold in Kentucky have remained relatively constant between 1990 and 1999. Yearly fluctuations in pesticide use are often associated with weather conditions and economic factors.

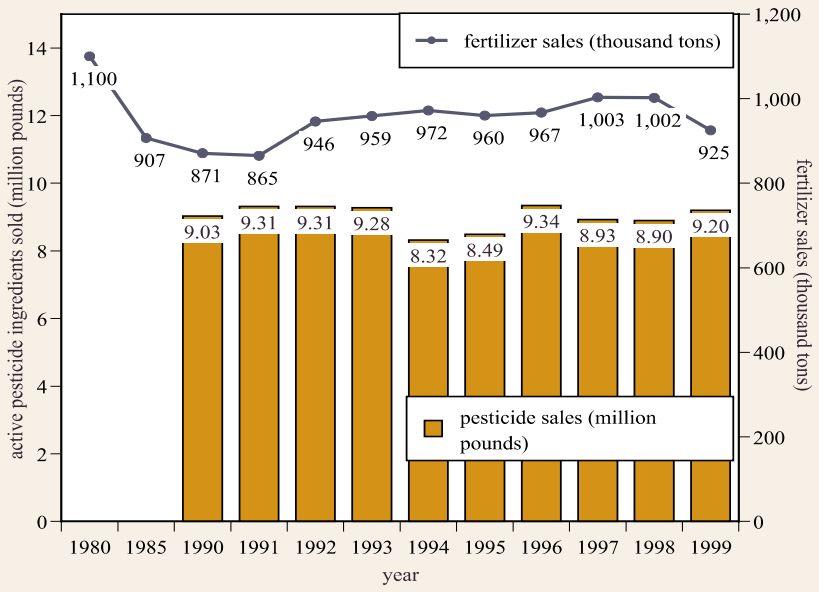
Five pesticides accounted for 51 percent of the sales in Kentucky during 1999. Atrazine remains the top agricultural pesticide sold in Kentucky and accounts for 23 percent of sales, a 3 percent increase from 1998. Atrazine is a herbicide used to control weeds in corn fields. Glyphosate, another broad-spectrum herbicide, is second in sales.

Goal Reduce pesticide use and ensure the safe use and disposal of pesticides.

Progress State efforts to promote the safe use and disposal of pesticides continue. The Kentucky Division of Conservation encourages the use of Integrated Pest Management (IPM)—a program to reduce pesticide use on farmlands. However, it is not known how much of the state's 5.2 million acres of cropland currently utilize IPM.[3]

In 1995, the Kentucky Department of Agriculture initiated a program to collect old or unwanted agricultural pesticides related to farm use. During 1999, a record amount of pesticides was collected (50,836 pounds) from 202 participants and disposed of at the Liquid

Measure 1. Pesticide and Fertilizers Sales in Kentucky



Waste Disposal (LWD) hazardous waste incinerator in Calvert City.[4] The leading pesticides collected were: toxaphene, trifluralin, DDT/DDD/DDE and methoxychlor. To date, the program has collected 222,767 pounds of old pesticides from 727 participants.

The Kentucky Division of Pesticides also operates a rinse-and-return program for pesticide containers. In fiscal year 1999-00, a total of 96,000 pounds of containers were collected. That year, 110 counties participated in the program and 470,912 one-gallon and 329,901 2.5-gallon containers were collected and chipped for recycling—this is a 24 percent statewide recycling rate for pesticide containers.[5]

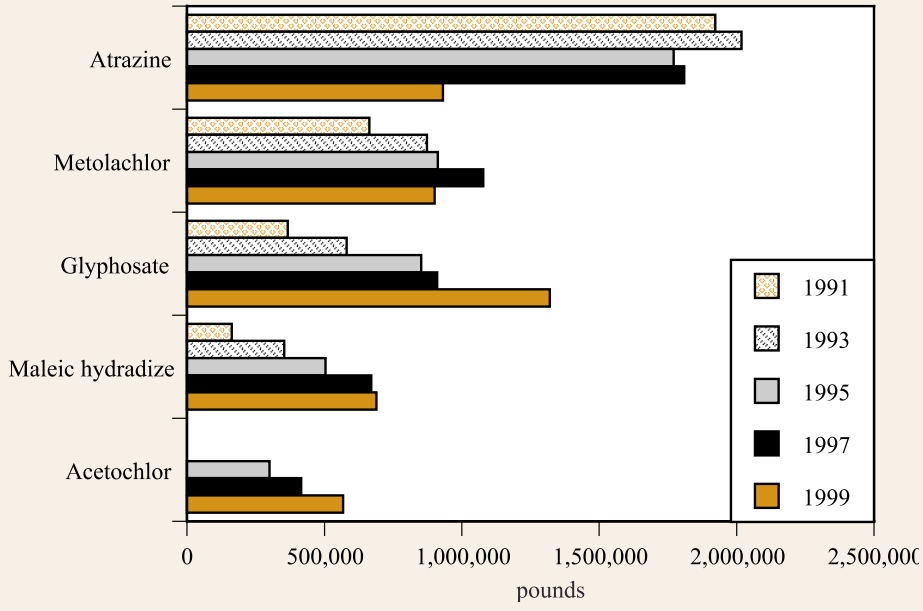
Footnotes

1. *Pesticide Sales and Industry Usage 1996 and 1997 Market Estimates, page 11, U.S. EPA, November 1999.*
2. *Ibid.*
3. *Ky. Department of Agriculture, August 2000.*
4. *Pesticide Collection Program, Ky. Department of Agriculture, Division of Pesticides.*
5. *Ibid.*

Measures - notes and sources

Measure 1. *Pesticide sales based on annual surveys. Pesticide sales data not available prior to 1990. Source: Ky. Department of Agriculture, Ky. Agriculture Statistics Service.*
Measure 2. *Pesticide sales based on annual surveys. Pesticide sales data not available prior to 1990. Source: Ky. Department of Agriculture, Ky. Agriculture Statistics Service.*

Measure 2. Top Sales of Active Pesticide Ingredients In Kentucky



Pesticide Residues in Food

Indicator 7. Pesticide Residues in Food

At a Glance

Pesticide residues in food (percent detects)
U.S. 35%
Kentucky produce . . 0%

Pesticide residues in food (percent detects above tolerance levels)
U.S. 1.9%
Kentucky produce . 0%

Number of organic farms in Kentucky
1998 67
2000. 80

Background

Pesticides are probably one of the most used and regulated chemical products in the United States. Several agencies regulate the use of pesticide. These include the U.S. Environmental Protection Agency (EPA), the Food & Drug Administration and the U.S. Department of Agriculture. There are more than 14 separate regulations governing the use of pesticides. All of these regulations are in place to help protect human health.

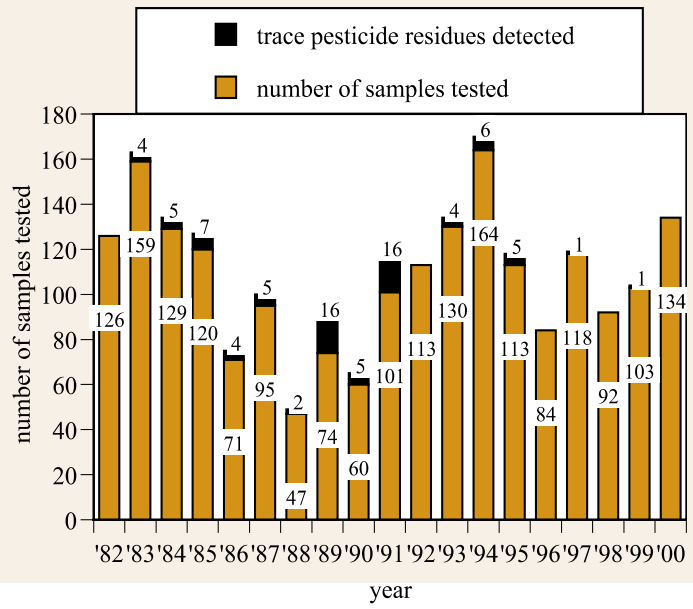
There are currently 20,000 registered pesticide formulations. Of these 20,000 pesticide formulations, the U.S. EPA has set residue (tolerance) limits on 3,551. The U.S. EPA plans to reassess tolerance limits and exemptions for 9,721 pesticide active ingredients by 2006 to meet the new requirements of the Food Quality Protection Act.[2] The act specifically requires the U.S. EPA to carefully evaluate children's exposure to pesticide residues in and on foods they most commonly eat (i.e., apples and apple juice, orange juice, potatoes, tomatoes, soybean oil, sugar, eggs, pork, chicken and beef). The U.S. EPA is also evaluating new and existing pesticides to ensure that they can be used with a reasonable certainty of no harm to adults as well as infants and children.

Goal Reduce the health risks of pesticide residues in food.[3]

Progress Despite many regulations, pesticide residues are still found in our food supply. The U.S. Food and Drug Administration reports that 35 percent of the food tested during 1999 had detectable pesticide residues, of which 1.9 percent of samples were above the allowable limits. The food sampled that violated federal pesticide residue standards most often were: blackberries (detected in 75 percent of tests), kale (detected in 33 percent of tests), okra (detected in 22 percent of tests) and mustard greens (detected in 14 percent of tests).[4]

Chloropyrifos, malathion and diazinon were the pesticides most often detected in food samples tested by the U.S. Food and Drug Administration. These chemicals are now either under review or will be phased out by the U.S. EPA. Diazinon will be phased out for indoor use beginning in March 2001 and for all lawn, garden and turf uses by Dec. 2003. Malathion is currently under public comment and is being reviewed for phaseout. Chloropyrifos, commonly known as Dursban, will be phased out by December 31, 2001.[5] All of these chemicals are organophosphates. Organophosphates are neurotoxic, meaning they can harm the central nervous system.[6] Gerber baby foods has stopped

Measure 1. Pesticide Residues in Kentucky Produce



receiving fruits and other produce grown using organophosphates due to the risks posed to infants and children.[7] The U.S. EPA is reviewing the entire class of organophosphate pesticides.

The Kentucky Cabinet for Health Services randomly samples produce grown in the state for pesticide residues. In 2000, 134 samples were tested and no residual levels of pesticides were found.

Public and commercial interest in foods produced without the use of chemicals is growing. As of December 2000, 80 organic farms (6,090 acres) were certified by the state, compared to 67 in 1998. About 1,470 acres are currently in active organic crop production in Kentucky.[8]

In previous years, the Environmental Quality Commission tracked lawn-care chemicals used by commercial applicators in Kentucky. However, the lawn care chemical survey conducted by the Kentucky Division of Pesticides, was discontinued in 1998. Officials from the division report that the survey was discontinued because of a lack of funding, manpower shortages and problems with the data reporting system. Data concerning the use of lawn and garden chemicals in the United States is not tracked by any federal agency.

Footnotes

1. *Pesticide Sales and Industry Usage 1996 and 1997 Market Estimates, page 11, U.S. EPA, November 1999.*

2. *Tolerance Reassessment, U.S. EPA, Web - site - http://www.epa.gov/pesticides/tolerance.*

3. *A pesticide, for purposes of this report and as defined under federal law, is a broad nonspecific term that includes insecticides, herbicides, fungicides, and other agents.*

4. *Food and Drug Administration Pesticide Program: Residue Monitoring 1999, page 6-7, Food and Drug Administration, March 2000.*

5. *Status Summary of the Organophosphate Review Process, U.S. EPA, Web site - http://www.epa.gov/pesticides/op/status.htm.*

6. *PQPA Safety Recommendations for Organophosphates, U.S. EPA, Office of Pesticide Programs, August 1998.*

7. *"Baby Food Company Reduces Use of Organophosphates on Peaches," World Food Regulation Review, November 1998.*

8. *Ky. Department of Agriculture, August 2000.*

Measures - notes and sources

Measure 1. *Food samples screened for parts per billion of chlorinated pesticides and .05 parts per billion of organophosphates. If other contaminants are suspected, additional testing is conducted. Residue levels detected have been below tolerance standards since 1990. Source: Ky. Department for Public Health.*

Blood Lead Levels in Children

Indicator 8. Blood Lead Levels in Children

At a Glance

Number of blood lead screenings of children
1994 32,447
1998 35,576
2000. 21,412

Number of children with blood lead poisoning
1994 302
1998 327
2000. 318

Number of children with blood lead levels of concern
1994 4,150
1998 4,220
2000 1,806

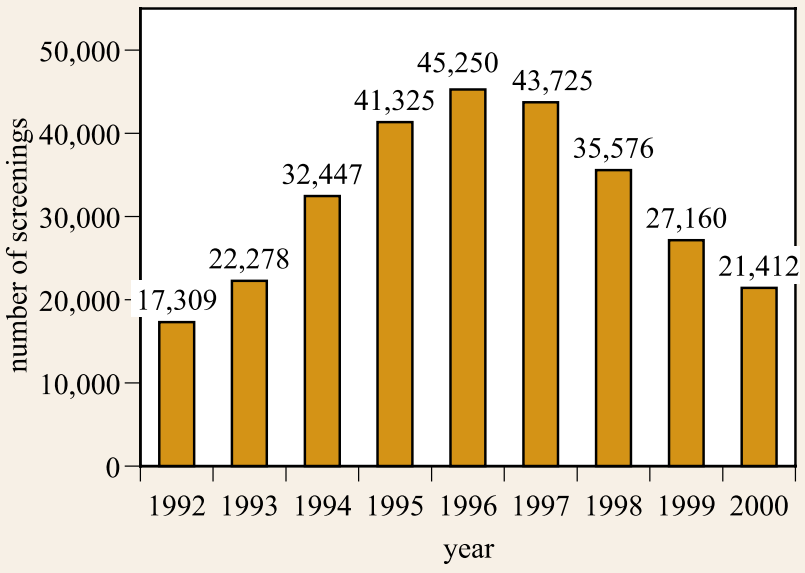
Background Lead poisoning is considered to be one of today's most preventable child health problems. About one in 11 children in America has high levels of lead in his/her blood, according to the Centers for Disease Control and Prevention. The long-term effects of lead exposure in a child can include learning disabilities, decreased growth, hyperactivity, impaired hearing and even brain damage. If caught early, these effects can be limited by reducing exposure to lead or by medical treatment.

The use of lead in consumer products has dramatically declined since the 1970s and 80s. Leaded gasoline was phased out beginning in 1985 and after Dec. 31, 1995 was no longer available in the United States. Lead-based paint was banned for domestic use in 1978. But the historic deposition of lead in soils remains a problem, particularly in urban areas. Lead-based paint in older homes has become a primary source of lead exposure to children. The U.S. Department of Housing and Urban Development estimates that 64 million dwellings, 75 percent of the homes built before 1978, have lead-based paint.[1] An estimated 875,000 homes in Kentucky could contain lead-based paint, 148,750 of which are home to children under six years of age—the age group most susceptible to lead poisoning.

Goal In 1991, the U.S. Public Health Service established the goal of eliminating childhood lead poisoning by 2011.[2] In conjunction with this goal, the Centers for Disease Control and Prevention (CDC) issued guidelines calling for children age one through five to be screened for lead exposure. In 1997, the CDC determined that there was a declining trend of average blood lead levels in children and revised its guidelines to better target children at risk.[3]

Progress The Kentucky Cabinet for Health Services conducts programs for lead poisoning prevention, child blood-lead testing and public education about the hazards of lead. In 2000, local health departments conducted 21,412 blood-lead screenings of children under the age of six. The tests found that 318 children (1.48 percent of those tested) had blood lead levels of 20 micrograms per deciliter of blood (µg/dl) or above, high enough to cause severe and

Measure 1. Blood Lead Screenings in Kentucky Children



adverse health impacts. Another 8.4 percent of the children tested (1,806) had blood lead levels of concern (10 to 19 µg/dl) which could result in behavioral and developmental problems. The U.S. EPA has issued new lead standards to better protect the health of children. These standards are designed to lower the amount of lead a child is exposed to in his or her environment.[4]

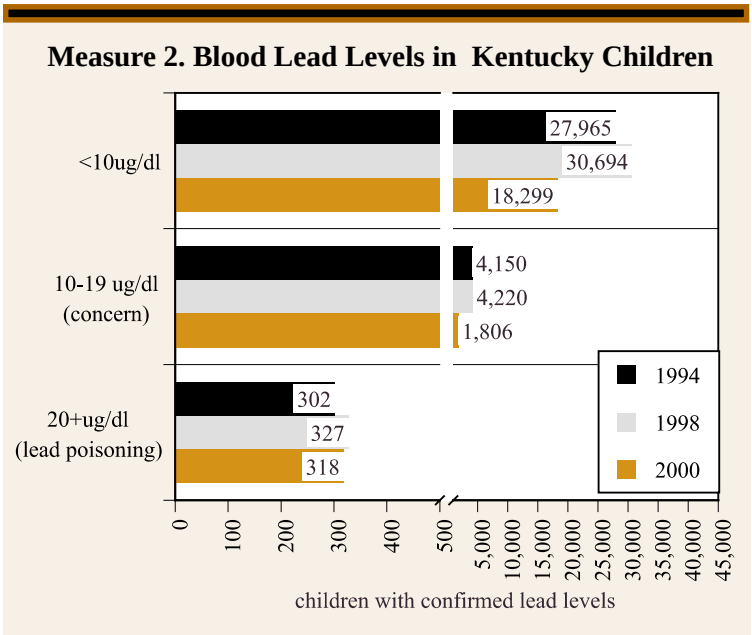
Over the past four years, there has been a dramatic decline in the number of children screened for lead poisoning by local health departments. The Cabinet for Health Services attributes the decline in part to the implementation of the Medicaid Managed Care in two regions, which has resulted in the use of private providers in lieu of local health departments. This has made tracking lead testing difficult. State officials also report that many private physicians do not regularly screen children for lead and that the problem of lead in children may be greater than what is currently known. The Cabinet plans on implementing better tracking procedures for lead blood testing and encouraging private physicians to test their patients for lead.

Footnotes

1. "Everything you ever wanted to know about regulations but were afraid to ask," U.S. EPA, Web site - http://www.epa.gov/region08/community_resources/muni/other/olead.html.
2. CDC Performance Plans, Centers for Disease Control, Web site - http://www.cdc.gov/od/perfplan/2000xiilead.htm.
3. CDC's Lead Poisoning Prevention Program, Centers for Disease Control, Web site - http://www.cdc.gov/nceh/lead/factsheets/leadfcts.htm.
4. "EPA Announces Tough New Standards for Lead," U.S. EPA, Press Release, December 26, 2000.

Measures - notes and sources

Measure 1. *New data collection system started in 1996. Source: Ky. Department for Public Health.*



Measure 2. *µg/dl- micrograms per deciliter of blood. New data collection system started in 1996. Source: Ky. Department for Public Health.*